THE OPTICAL
MAGIC LANTERN
JOURNAL
AND
PHOTOGRAPHIC ENLARGER.

Vol. 1.—No. 10. [Entered at Stationers' Hall.] MARCH 1, 1890. Price One Penny.

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Notices.

THE *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price One Penny, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

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Editorial communications must be addressed, The Editor; advertisements and business communications to Taylor Brothers, care of the Publishers, Dorset Works, Salisbury Square, Fleet Street, London, E.C.

American Agents:—The International News Co., 83 and 85, Duane Street, New York City.

Notes.

AT a meeting lately held at St. James's Hall, Regent-street, W., it was decided that *The Lantern Society* be formed. A committee, consisting of Messrs. Bethel, Cresswell, Gladstone, Holding, Mackie, Sheppee, and Shipton, were appointed to formulate rules to be submitted to a general meeting, the date of which will be duly announced, and Mr. T. H. Holding, 46, Chesilton-road, Fulham, S.W., was appointed Secretary *pro tem.*

* * *

THE Crystal Palace Exhibition is to commence on the 11th inst., and close on Saturday, 29th instant. In addition to the published schedule, a silver medal will be awarded for the best picture, irrespective of subject, amongst those pictures which have never been previously shown at a public exhibition. Two additional silver medals will be given by Mr. B. Wollaston and Mr. J. F. Peasgood for the two best pictures, irrespective of class, in the amateur and professional sections.

* * *

"Is photography always truthful? One has but to inspect an advertisement which appears in many druggists' windows, setting forth certain claims pertaining to a preparation for producing luxuriant hair. In it we find a series of portraits of a lady said to be taken at periods of several weeks (?) apart in order to show the rapidity with which her tresses have grown; but we also find that in each she wears the same dress, in which the various folds and even creases are identical. Meantime her hair has *grown* a few feet in length." Thus writes a correspondent.

* * *

AT a demonstration by Mr. Preston, given at the Sheffield Photographic Society, it was thought that in point of brilliancy the oxy-hydrogen and etho-oxygen lights were about equal; and that for general convenience, where house-gas was not readily attainable, the latter was the best form of light; whilst as regards the general safety of the two the former was the most desirable.

The Magic Lantern : Its Construction, Illumination, Optics & Uses.

CHAPTER IX.—GENERAL MANAGEMENT OF THE LIGHT.

(Continued from page 67).

OXY-CALCIUM.

ALTHOUGH this is commonly admitted to be somewhat inferior to the oxy-hydrogen light, yet if the jet be well and properly constructed there is no reason why the light produced by this method should be much inferior, certainly not so much as commonly accredited. Instead of the stream of oxygen playing through a flame of hydrogen or common gas, the flame in this instance is that of a spirit lamp burning alcohol.

The spirit must be kept as cool as possible, hence the reservoir is placed outside of the lantern. This reservoir is constructed somewhat on the same principle as the water bottles for bird cages. It consists of two parts ; the inner receptacle, filled with alcohol, is inserted and lowered into the outer case. This reservoir is supplied with a valve, which closes when it is inverted, thus precluding all chances of spilling ; but as soon as it has been lowered into its receptacle the end of the valve touches the bottom, and it is opened, allowing a small quantity of the alcohol to run out, which, as soon as it covers the mouth of the reservoir, stops further supply until the spirit has been consumed and allows a bubble of air to enter the chamber, which displaces the same bulk of spirit, and so on until it is all used. The spirit travels along a tube to the burner, where it finds its level, at which it is, as just described, maintained. The flame should be large, and the wick not too tightly packed in the burner. The other manipulations are similar to the blow-through jet. Where house gas is not obtainable this form will be found very convenient when the limelight is preferred to oil.

ETHO-OXYGEN LIME-LIGHT.

This is another form of lime-light. Briefly, it consists of an arrangement for rendering a portion of the oxygen combustible, whilst another portion is allowed to mix with it before being burned. A mixed gas jet is the one to employ with this arrangement.

A cylinder, or combination of cylinders, contains a woollen material capable of becoming charged with ether. The ends of one of the tubes having been unscrewed, about a pint of ether is poured into the saturator, and allowed to remain for a minute or two until the flannel which the cylinder contains has become saturated. The remainder of the ether is then allowed to drain out, and can be employed for future occasions. When the flow ceases, the saturator is ready for use.

The supply of oxygen may be contained either in a bag or compressed in a cylinder, but it must be remembered that much more oxygen is required for this light than with any of the preceding.

As it is necessary to divide the oxygen coming from the general supply, a T piece of tubing (Fig. 36) is required, the lower leg of which is attached by tubing of the desired length to the supply. The right hand is similarly attached to the oxygen side of the jet, and that on the left to one of the cylinders, which should be laid on a table at the back of the lantern (Fig. 36). The other cylinder of the saturator is connected with a piece of tubing to the hydrogen side of the jet. This arrangement provides both a direct supply of the oxygen and also another supply after it has passed through the saturator. When about to light up, the oxygen tap of the jet should be closed, and that on the hydrogen side opened, then the tap of the gas receptacle should be opened. The gas is then lighted, and time allowed for the lime to become warmed, after which the oxygen may be turned on. If hissing or roaring ensues, the supplies must be delicately adjusted until it ceases.

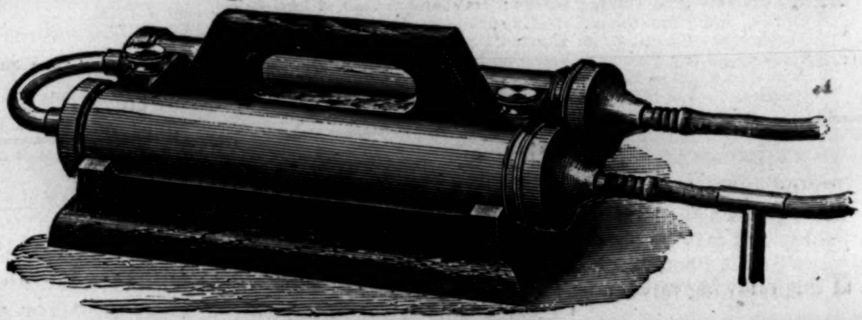
FIG. 36.

When using cylinders of compressed gas, they are oft-times set on end, partly to economise the piping and partly because they are more easily accessible for turning off and on. It is well to tie them to one of the legs of the table or other support, for as the ends of the cylinders are not very broad, a little touch suffices to knock them over, and damage may be done by also dragging the lantern from its stand.

—:o:—

Oxygen Cylinder Explosion.

In our last issue we had a notice of the explosion of a cylinder at Polmadie. From inquiries, it appears that the bursting was caused not by the cylinder being overcharged, but by the admixture of hydrogen and oxygen in a compressed state. The cylinder alluded to had, it appears, been tested only a few months previous to a pressure equal to twice what would be required for an ordinary charge.

During the time of the compression of oxygen, a considerable amount of heat is produced, but if a certain proportion of hydrogen be present, the amount of heat will be much greater. This heat upon reaching a certain pitch might be sufficient to cause ignition, and consequently an explosion, especially if coupled with concussion.

From a letter on another page it will be seen that it is intended in future to provide hydrogen cylinders with a left hand screw, which will prevent the wrong cylinder being attached to the compressing pump.

—:o:—

Transparencies from Paper Prints without a Camera.

It is a well-known fact that in a paper print there is much more detail than is visible when examined in the ordinary manner. Much of the detail is sunk in the paper, and when of a delicate nature it becomes united and presents the appearance of a uniform shadow.

If an unmounted print is viewed by transmitted light, it will be found that many of the shadows contain delicate details which were not seen when the print was viewed by reflected light.

If prints are copied by the camera, the finer detail of the picture will not be reproduced; but, by another method to be described, lantern slides may be made from prints which will present more detail than shown in the original when examined in the usual way.

Procure an ordinary printing frame, into which is affixed a piece of clear glass, and in the dark room place upon it, face up, the print to be copied. Then upon this is placed a sensitized plate, its face in contact with that of the print. This is then secured in contact and exposed for a few seconds in front of an ordinary gas or lamp flame. On development it will be found that upon the negative the most minute detail that was seen in the print by transmitted light will have been reproduced.

From the negative thus obtained, a transparency may, by the same method of contact printing, be produced, which, when enlarged by the lantern, and compared with the original print from which it was taken, is seen to possess an immense amount of detail not observed in the original print.

When a print has to be taken off its mount for the purpose of being thus copied, it is necessary that the greatest care be taken that the paper is not split or damaged, and that all the mountant be thoroughly removed, as any marks or imperfections upon the back of the print are reproduced.

To remove the print from its mount, place it in a flat dish of warm water, which in a short time will permeate the print and soften the mountant. This is accomplished when, if a knife be inserted under one of the corners, the print can be peeled off. Some mountants will, however, become softened in cold water.

After the print is removed from the support it is laid face down on a sheet of glass, and the back sponged to remove all traces of the mountant. The print, after being dried, may then be used in the manner above indicated for contact printing.

The sharpness and quality of transparencies produced in this way are so great that it is impossible to distinguish the source from which they were taken; particularly is it so in the case of portraits.

From the foregoing it will be seen that those who possess portraits of friends, views, or other photographs, will be enabled to reproduce them as lantern slides without much trouble, and without a camera.

—:o:—

Camera Club Notices.—March 3rd, 8.30 p.m., Smoking Concert; 6th, 8 p.m., Mr. Andrew Pringle, on "The Optical Lantern;" 13th, 8 p.m., Lantern evening; 17th, 8.30 p.m., Evening for Testing Lenses; 19th, 8.30 p.m., Smoking Concert, Annual Exhibition of Photographs; 20th, 2 p.m., at Society of Arts, Conference and Exhibition of Apparatus, papers till 5.30 p.m.; 21st, 10 a.m., ditto; at 7.30 p.m., Annual Dinner at Frascati Restaurant, Oxford-street; 27th, 8 p.m., Mr. Willis on "Platinotype Possibilities."

The conference in connection with the Camera Club will take place at the Society of Arts on Thursday and Friday, March 20 and 21, under the presidency of Capt. Abney. Amongst the papers to be read and discussed will be the following:—"The Art of Drawing and Photography," by Mr. A. M. Rossi; "Photography by the Light of the Electric Spark," by Lord Rayleigh; "The Latent Image," by Mr. C. H. Bothamley; "Limitations in the Treatment of Subjects by Focus," by Mr. T. R. Dallmeyer; "Collotype and Photo-etching," with practical illustrations, by Mr. W. T. Wilkinson; and other papers by the President, Mr. Lyonel Clark, and others. It is further proposed to bring forward in as complete a manner as possible the subject of photographic exhibitions and their regulations. The exhibition of apparatus will be as usual in the library of the Society of Arts. All photographers or others interested in the subjects under discussion are invited to be present.

Lantern Slides and Lantern Slide Making.

(Continued from page 61.)

HOLDING the frame towards a screened kerosene or gas-light about 18in. distant, an average exposure of ten seconds is given by quickly removing and replacing the screen. A thin negative will need but two seconds; a very dense negative will require from twenty to thirty seconds, and one having a yellow tinge may take a minute. By making a few trial exposures and developing them, the different capabilities of different negatives may be quickly learned, so that one may tell by instinct how long the exposure should be. For contact work many prefer to use 4 by 5 negatives, selecting the centre for the picture; but a better size is the 3¼ by 4¼ plate, which has margin enough to allow the proper locating of the sensitive plate and makes a picture better proportioned to the lantern size.

Instead of artificial light, diffused daylight or magnesium flash or ribbon light may be employed. By the contact method slides may be made very rapidly during the evening, when one has leisure time.

Reduction by the camera is largely preferred, because the variations in the size of the image to be impressed upon the sensitive plate are so easily and quickly effected. Usually the camera is placed on a long board, holding at one end a frame, in which are removable kits or frames to hold different sized negatives. A printing frame with the back removed may be utilised for this purpose. The negative is best illuminated by facing that portion of the sky opposite to the position of the sun, though it is possible to use sunlight by interposing a ground glass between the window and the negative, and giving a shorter exposure. The space between the negative frame and camera should be covered by a light black cloth to exclude extraneous light.

I prefer to have a special frame fitted to the back of the camera, with a 3¼ by 4¼ aperture cut in the centre, arranged to support or hold a 3¼ by 4 double plate-holder, rather than to employ a kit in a large holder, because it is more convenient and more easily handled. I generally employ a rapid rectilinear lens, though it is not necessary, as a wide angle lens will answer just as well. Any lens that will give a sharp picture stopped down to F-16 will do.

Much study has been given to the matter of artificially illuminating negatives for reduction in the camera. The cheapest method is the magnesium ribbon light moved around in front of the negative, having a diffusing screen interposed.

The use of an arc electric light diffused by a screen of ground glass has been suggested, the light to be above and in front of the negative about four feet distant; it thus strikes the negative at an angle, and is said to illuminate it equally.

There have been three favourite kinds of developers for lantern slides, pyro, hydroquinone, and ferrous oxalate. The two latter do not stain the fingers. Pyro should be preserved with sulphite of soda, and combined with such alkalies as soda and potash. Four ounces of sulphite should be mixed with one ounce of pyro. This is undoubtedly the quickest developer, and, when the exposure is nearly correct, imparts a brownish tone to the slide. Not more than two plates should be developed in succession in one solution. A working formula is as follows :—

Pyro	2 grains.
Sulphite of soda	4 "
Carbonate of potash	3 "
Water	1 ounce.

If the shadows develop too dense, the amount of pyro should be decreased.

A hydroquinone developer contains more hydroquinone in proportion than there is pyro in the pyro developer to get the same amount of density; but the difference is made up by the greater number of plates that can be developed with it. The following is used successfully :—

Sodium of sulphite	40 grains.
Hydroquinone	15 "
Water	1 ounce.

To this is added fifteen grains of carbonate of potash, which forms the developer with which from six to eight plates may be developed in succession.

(To be continued.)

:o:

Hardwich on Scott's Warm-Air Saturator.

SOME short time since Mr. A. W. Scott, of Weston-super-Mare, sent me one of his "warm-air saturators," with a request that I would try it and report the result. The saturator was charged with "gasoline," and three pints of the same fluid were sent for renewal.

I have experimented carefully with this saturator, and am much pleased with its performance. It is equal, and possibly superior, to Broughton's vapour tank, which is saying a great deal, as this tank, in my opinion, is nearly perfect in working, and if it had been incapable of explosion could not have been superseded.

Ives' porous saturator does not charge the oxygen so highly with ether, and is consequently more liable to "snaps" and "passing back" towards the end of the lecture; but the experiments of the late Mr. Barber, conducted under my direction, proved that it is safe from fear of dangerous explosion. Mr. Sutton, of the firm of Cutts and Sutton, who was present, can testify that when it was purposely filled with explosive gas, and the flame drawn through it so completely that it set fire to the bag on the other side, the only effect was to produce a report about as loud as a small pistol. Nothing gave way or burst, even when the experiment was several times repeated.

Whether Mr. Scott's saturator is as safe as Ives', I am not able to say. He mentions, in a private letter to me, that there are three feet of air passages inside it, but he does not say of what diameter, consequently I do not know whether there would be any chance of what is called "short circuiting" from possible imperfection in the manufacture. This was where the Broughton tank broke down. There were seven feet of tortuous windings, but the solder gave way on a particular occasion, and the oxygen in consequence passed by an easy route, emerging from the H pipe in an imperfectly saturated and explosive state. Such a thing could not happen in an Ives' saturator, because the barrels are full of flannel, and the air tubes go straight from end to end.

I would suggest that until this point is settled beyond dispute, Scott's saturator should be used with pumice tubes. M. Pumphrey, of Birmingham, makes them of a substantial kind, and it must be a heavy shock indeed of explosive flame that would force its way through one of his tubes. Or, in lieu of pumice tubes, you might use Oakley and Beard's safety jet, made after a model given by me in *The British Journal of Photography*. This jet has the additional merit of being very *silent* under high cylinder pressure, as the mixing chamber is oval in form without any corners, and in conjunction with the pumice chamber above tends (like the air chamber in a forcing pump) to destroy jerking movements and produce a continuous flow.

With Mr. Scott's nipple of one-fourteenth of an inch aperture attached to one of the afore-mentioned jets, and connected with his apparatus, I have obtained a stronger light than I ever got before without noise; but I should hesitate at present to make an exact comparison between benzoline and coal gas in that particular, and I am also of opinion that much may be done with apertures of a smaller size (such as one-twentieth of an inch), provided the pressure be sufficient to spread the flame over the whole face of the lime.

In Messrs. Griffith Morris' circular, which I receive every month from their address at Manesty-lane, Liverpool, I see gasoline spoken of as sold in original cases containing two cans of four and a-half gallons each, at 1s. 5d. per gallon, cases included. The railway companies, however, refuse to carry it except at what they term their "ton rate," so that by the time it reaches Sunderland, which is the nearest large town to me, the price has risen to 2s. 6d. a gallon. Even then it is much cheaper than "White's anæsthetic methylated ether of ·717," which is sold here at 2s. 3d. per pound.

In concluding this article, I must, in the name of all lecturers who use the limelight, thank Mr. Scott for this last and most important addition to our means of illustrating what we have to say, and of teaching by the eye as well as by the ear.

T. FREDERICK HARDWICH.

I would venture to suggest a caution in using Scott's saturator. The tap leading to the bag, or cylinder, should be kept closely shut until the supply of oxygen gas is turned on, as I notice a tendency to condensation of vapour in the O tube, and a consequent spirting of a few drops of liquid gasoline the wrong way when this precaution is neglected.

:o:

Editorial Table.

NO. 1 of *The Amateur Photographer Prize Pictures* contains an essay on "Photography as a Recreation," and is illustrated by the Woodbury type process from photographs by Mr. Alex. Keighley, together with descriptions of same. It is nicely got up, and the printing both of the pictures and letterpress is unusually fine.

THE catalogue of Messrs. D. Noakes and Son, of Greenwich, is before us. It states that this firm make a speciality of supplying, not only lanterns and slides, but also a competent manipulator, and even a lecturer. Particulars are given of their apparatus, including an intermediate gas regulator, which they claim prevents noise when compressed gases are used.

The Facile.

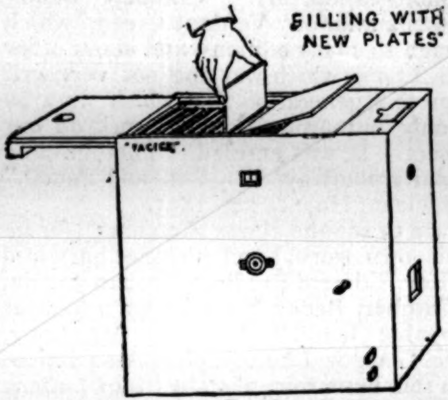

FIG. 1.

ON another page will be found an advertisement of this useful and complete hand camera. The accompanying cuts represent the internal arrangements so completely that the mode of working of the various parts will at once be apparent.

A dozen plates placed in sheaths are inserted in the upper chamber (Fig. 1) and the lid closed. Another chamber, identical in all respects with the first, is situated beneath it.

These boxes (Fig. 2) are so connected with a rack and pinion that by slightly turning the milled head, the upper box is moved forwards and the lower backwards. There being a slot in the base dividing these two chambers, each plate will in turn slide into grooves provided in the lower box, where it stands ready for exposure. The exposure is effected by pressing a lever at the lower part of the camera, and the shutter (Fig. 3) is such that the act of exposing resets it. The exposed plates are removed from the lower chamber by a similar arrangement, as Fig. 1. A finder is provided, and the lenses supplied are of excellent defining power. It would be a difficult matter to conceive of a more concise way to carry, change, and expose plates. This camera has been found excellent for taking negatives with a view to their reproduction as lantern slides.

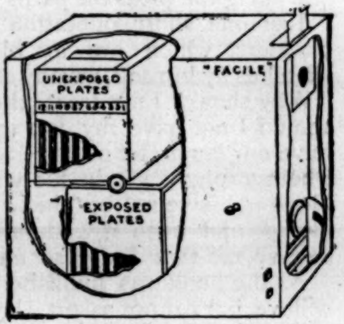

FIG. 2.

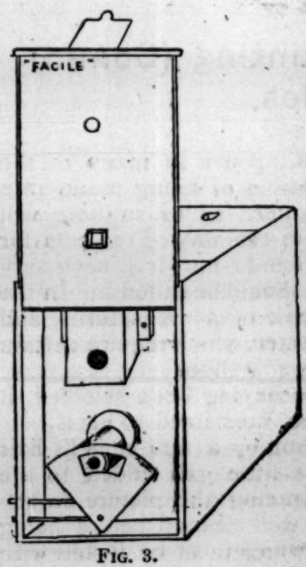

FIG. 3.

:o:

THE best style for glass painting is undoubtedly the *florid*, which consists in keeping all the colours bright. The powerful artificial light which passes through the glass renders it imperative that all objects depicted upon it should be exaggerated in tone. In glass slides the amateur is advised not to use greenish blues or greenish yellows.—*A. N. Rintoul.*

Flashes on Lantern Topics.

SINCE last issue a dark flash has passed across the firmament of photographic art. "Cuthbert Bede" has died. He was author of "Verdant Green," which has passed through so many editions, and many other illustrated works, among which was one not very well known to the present generation, but which may be said to be the only humorous English work on our rather dry subject. It was entitled, "Photographic Pleasures, popularly pourtrayed by Pen and Pencil." Published by Maclean, Haymarket, 1855.

Let all who care to see the clever sketching (for he illustrated all his own works) and pleasant harmless fun of the late Rev. Edward Bradley (for that was the real name of Cuthbert Bede) haste to get a look at this really enjoyable book, and do as Mr. Long, President of the Glasgow Photographic Association, has done—turn the humorous sketches into lantern slides, so that although he has passed away he may yet speak, and lead many others, as he led me, into and along the pleasant paths of photography.

Just one short quotation from the first of twelve chapters, which are all illustrated with full page sketches by himself, worthy of Leech or Cruikshank:—"Why should I not treat photography lightly? Why should I not have my jest upon it? Where we may have our laugh, let us have it, and that right heartily. Photography is yet in his youth, and may have hot blood in his veins, but he will be generous and forgiving, and even if I should hurt his feelings, will believe me that I did so unintentionally."

As the book was published thirty-five years ago, I believe, but cannot assert, that the copyright will have expired by this time. BULL'S-EYE.

:o:

Making and Painting (Comic) Slides.

SEVERAL pictures, such as appear in many of the comic journals, are susceptible of being made into humorous and interesting lantern slides, so there will not be found any difficulty in the way of subjects for those who wish to try their hands, nor is it necessary that the aid of photography should be called in. In the description, I intend to speak of *plain* pictures, and not those of a moving character, which require certain maskings, and are known as *slip* slides.

The subject of the picture having been selected, it is necessary that the lines be transferred to glass.

Although many people employ a fine camel's-hair brush and india ink, with a little gall added to the water, I prefer a pen for tracing the picture on the glass, which latter must be well cleaned before being placed on the picture, and which must be licked with the tongue (as described in No. 1 of this journal) and allowed to dry.

The outline is now traced upon the glass, care being taken to keep the lines as even and fine as possible.

The most convenient rest for the picture during the time the colours are being applied is a desk of the form known as a retouching desk, by which the picture may be viewed by transmitted light.

If it is intended to use oil colours it will be found that the best vehicle to use will be megilp (which is made by mixing equal parts of pale drying oil and mastic varnish). Gold size and turpentine must also be kept at hand. The addition of the former to the paint will make it dry quickly, and the latter is employed for removing any superfluous paint, cleaning brushes, &c.

The sky is the first part of the picture to be attended to. With the aid of a hog's-hair brush, used in the manner of a dabber, put on the blue paint, making the colour fainter as the horizon is reached. After this has been done the paint must be smoothed and blended. For this purpose the end of the finger, previously rubbed with a piece of pumicestone, will be found efficient, after which a few strokes of a flat camel's-hair brush will give a soft blended effect.

The distant portion of the scene is now to be put in, the most prominent parts of the foreground being last. Sable brushes will be found to be the most desirable. The following colours should be placed upon the palette:—Gamboge, madder lake, crimson lake, sienna, umber, black, and blue.

The brightest greens may be obtained by mixing gamboge and blue, and scarlet by an admixture of gamboge and madder lake.

After the first coating of paint is dry the clouds are put in, also the detail in the other portions of the picture.

Taste and experience are the only guides in finishing a painting, and dust must never be permitted to come near a wet picture. It is a good plan to project the picture from time to time on a screen by the aid of the lantern, as the various defects will be more apparent. ANDREW C. COLE.

:o:

Foote's Polyopticon.

IN the course of a letter recently received from Dr. Foote, he says:—"I made up a Polyopticon on the double plan which you mention in the January issue, and it is all right except the heat. At the end of half an hour it becomes too hot to handle.

"Perhaps you would say that the box ought to be made larger, roomier, but a good deal of the success of the Polyopticon is due to crowding the picture pretty close to the light and the reflector very close to the light on the other side. The adjustment of parts I find is rather a perplexing problem. I have never had the good fortune to see the 'Wonder Camera' run by an oxy-hydrogen light. Of course they use a condensing lens, and that may in a way act as a barrier to heat, but I should think it would focus heat as well as light upon the burnable picture and destroy it.

"A friend who tried an electric light in one of my Polyopticons (arc light) found that it destroyed a card picture almost immediately."

:o:

THE annual lantern and musical entertainment of the Photographic Club was held on the 29th ult., at Anderton's Hotel, Fleet-street, E.C. The hall was well filled. Songs, recitations, and lantern exhibitions alternated during the evening. Mr. F. A. Bridge gave a humorous and graphic description of the slides as they were projected upon the screen. The majority of these were the work of members.

Applications for Patents.

No. 20,850.—Dec. 27, 1889, W. W. Horn, "Coupling for gas and other pipes."

No. 26.—Jan. 1, 1890, R. W. Thomas and L. Inger, "Focusing Appliance."

No. 52.—Jan. 2, L. G. Strangman, "Camera stand."

No. 82.—Jan. 2, R. Slingsby, "Carriers for flash lamps."

No. 151.—Jan. 4, J. B. Brooks, "Developing Appliance."

No. 166.—Jan. 4, Alex. J. Jones, "Holding bellows of camera rigid without baseboard."

No. 173.—Jan. 4, Frederick Kitto, "Apparatus for holding and exhibiting photographs."

No. 292.—Jan. 7, George Edward King, "Improvements in illuminating pictures, prints, &c."

No. 317.—Jan. 8, Thomas Newton Armstrong, "Improved arrangements for photographing by artificial light."

No. 384.—Jan. 9, August Fuhrmann, "Improvements in revolving stereoscopic panoramas."

No. 547.—Jan. 10, John J. E. Mayall, "Improved manner of colouring photographic impressions with oil colours."

No. 602.—Jan. 13, Edwin Justice, "Improvements in stretchers and frames for pictures, &c."

No. 611.—Jan. 13, William Charles Hughes, "Improvements in magic lanterns and apparatus."

No. 763.—Jan. 15, William Friese Greene, "An improved method and means of obtaining photographic representations."

No. 765.—Jan. 15, Newham Browne, "Improvements in plate changing apparatus cameras."

No. 1501.—Jan. 28, Wortley William Baggally, "An improved optical illusion."

No. 1503.—Jan. 28, Henry Joseph Redding, "Improvements in shutters for photographic apparatus."

No. 1600.—Jan. 30, Edgar Theodore Perkin, Frederic Louis Perkin and Arthur Rayment, "Improvements in magic lanterns."

No. 1857.—Feb. 4, James Vincent Elsden, "A combined lamp shade and transparency exhibitor."

No. 1938.—Feb. 5, Frederick Kitto, "Improvements in apparatus for holding and exhibiting photographs and other like views."

No. 1998.—Feb. 6, George William Secretan, "Magic photographs."

No. 2124.—Feb. 10, Albert Edward Lewis, "Improvements in magic lanterns."

No. 2211.—George Mackmurdie, "An optical toy."

Specifications Published.

No. 494.—C. Winter, "Detective Camera." Applied for Jan. 10, 1889. Price 1s. 1d.

No. 1,365.—W. J. Lancaster, "Photographic Lamp." Applied for Jan. 25, 1889. Price 8d.

No. 2,727.—R. J. H. Rastrick, "Magnesium Lamp." Applied for Feb. 16, 1889. Price 8d.

No. 1,439.—J. Turner, "Photographic Camera." Applied for Jan. 26, 1889. Price 6d.

No. 1,543.—W. J. Lancaster, "Camera Shutters." Applied for Jan. 29, 1887. Price 11d.

No. 12,860.—A. Wrench, "Magic Lanterns." Applied for August 14, 1889. Price 8d.

:o:

Correspondence.

OXYGEN CYLINDER EXPLOSION.

[*To the Editor.*]

SIR,—A good deal of unnecessary alarm has been caused by the lamentable accident which occurred rather more than a week ago at Glasgow, through the bursting of a cylinder. There is no occasion either for alarm or surprise when the facts of the case are known. If we hear of a man who deliberately throws a lighted match into a barrel of gunpowder, we are neither alarmed or surprised at the results. This is exactly what has occurred at Glasgow. The unfortunate man who lost his life charged hydrogen into a black cylinder (in direct contravention of the company's rules), and afterwards forgetting that he had done so, put oxygen into the same vessel; the result was an explosion, which took place at the first slight concussion which the cylinder received. A piece of the cylinder, which was picked up four yards from where the accident occurred, was quite hot, showing conclusively that ignition had taken place, and there could have been no spontaneous ignition if the two gases had not been present.

Every precaution is taken by the companies to prevent the possibility of O. and H. getting mixed. Under no circumstances will they fill hydrogen or coal gas into a black cylinder or oxygen into a red one; neither will they put the one gas into a cylinder which they even suspect has ever contained the other.

With a view, however, of making it absolutely impossible for two gases to be put into the same cylinder, it has been decided by this company, and also by the Scotch and Irish Oxygen Company, and the Manchester Oxygen Company, to fit all hydrogen cylinders with a left-hand thread, so that they cannot be filled at the oxygen pump; and in the same way it will be impossible to fill oxygen cylinders at the hydrogen pump. All consumers are earnestly requested to send their hydrogen cylinders either to the companies or to the agents through whom they obtain their supplies of gas, to have the alteration made, and the smallest possible charge will be made for taking off the present valves and fitting new ones. After a certain limit of time, of which notice will be given, no hydrogen or coal gas cylinders not provided with the new thread will be filled.

In some quarters the fear has been expressed that the accident at Glasgow occurred through over pressure. Any such apprehension may be immediately dismissed from the mind; explosion from such a cause is impossible. The cylinders are tested to double the pressure at which they are filled, and it is impossible to exceed the standard filling pressure of one hundred and twenty atmospheres. They are also re-tested periodically. For years past the Government have been using high pressure cylinders for ballooning purposes, similar to those in use at present. They had them in the Egyptian and Boer campaigns, and they have frequently been rolled from the top of a hill to the bottom, bounding from point to point, and in no single instance has an accident occurred or a cylinder burst.

In conclusion I would remind you of the fact that since oxygen and hydrogen have been supplied in high pressure cylinders—now some three or four years—only two accidents have occurred, and these at the works; whereas, when bags were in vogue, accidents, in many cases fatal, frequently took place. Only last week, in America, a lecturer on chemistry and ten or twelve of his pupils were seriously injured by the bursting of a retort in which oxygen was being made by the old-fashioned chlorate of potash process.—Yours, &c.,

T. HESTER,
Secretary to Brin's Oxygen Company, Limited.
Westminster, S.W.

LANTERN ASSOCIATION, CLUB, OR SOCIETY.

[*To the Editor.*]

SIR,—I understand that a meeting was lately held to form the above, and I feel assured that if the subscription can be arranged at five shillings a year, instead of the £1 or £2 suggested, a large membership may be expected. Two hundred members at five shillings are much more conducive to the well-being of a society than fifty at £1.—Yours, &c.,

FIVE SHILLINGS.

[A popular price is certainly desirable.—ED.]

Selections.

EXPLOSIVE accidents, which occur in the preparation of oxygen, may be referred to two principal heads—viz., impure materials, and carelessness or inexperience on the part of the manipulator.—*Geo. Kemp.*

⁂

I FIND the common carburetted hydrogen, as supplied by the gas companies, good enough for all practical purposes (for enlarging by oxy-hydrogen light). Although the light from the pure hydrogen may be a little whiter, I do not think this will compensate for the increased trouble in making it.—*Alfred Harman.*

⁂

WHEN I commenced enlarging by artificial light, I was told by different scientific gentlemen that the limelight was of little or no use for the purpose; but I felt determined to try for myself, and on account of its cheapness, steadiness, and ease in working, I prefer it to any other light in existence. —*E. Aldis.*

⁂

THE optical lantern has become so useful in so many branches of the photographer's art, as to render it a necessary part of his apparatus.—*R. G. Hunter.*

⁂

ALWAYS give special attention to the foreground of a picture. Never, if you can avoid it, have a long stretch of lawn or level of any kind between you and the object photographed. Change position until some bush or rock falls within your foreground, if possible. If this cannot be done, bring up the gardener's wheelbarrow, with rake and fork, to break the foreground and aid the relief of those objects more distant.—*Ch. Wager Hull.*

⁂

AN experienced exhibitor once told me that when his stock of limes happened to be exhausted, and time pressed, he made a practice of using a bowl of a clay tobacco pipe as a substitute.—*James Martin.*

⁂

PARAFFIN oil is better suited for the lantern than sperm oil. It gives a sharper and more intense light.—*J. M. Turnbull.*

⁂

THE curved surface of a lime cylinder does not give off the greatest amount of light until it has become "pitted" to some extent.—*M. Noton.*

⁂

ANYONE who has viewed one and the same photograph in its original size, and then enlarged upon the screen by a limelight apparatus, cannot have failed to perceive the very marked difference exhibited by such pictures; the impression upon the mind of the spectator being much grander in the case of the enlargement.—*H. Baden Pritchard.*

⁂

No book ever made a painter, or ever will. Neither can art be practically learned by books, but the written experience of others may lend important assistance to the student who understands the task of self-tuition. This is particularly true if he is gifted with such powers of perception as will enable him to understand, without any further aid, the instructions as they are given.—*Geo. B. Ayres.*

⁂

AN advantage of water colour painting on glass is that, should it be necessary to retouch the painting frequently, it is not so liable to become heavy and coarse, as will frequently happen in using oil colours, which is very detrimental to the painting when seen magnified on the disc.—*H. Bielfeld.*

Notes and Queries.

Optic, J. B., Rev. C. P., Armstrong, Jun., F. Adams.—Replied by post.

C. Clark.—Your post card was forwarded to the New York firm.

H. Stone.—The address of Dr. E. B. Foote, jun., is 120, Lexington-avenue, New York.

H. Worth.—We think you have no cause for alarm; you will find particulars in the present number.

R. G. Wheeler.—We have had complaints that the microscope was not sent, and have written twice to the firm in question, but have received no reply.

Disc.—We have been promised a sketch for next issue.

Cartoonist writes:—"What class of lantern gives the sharpest definition for projection on a large scale? 2. What appliance do I need to fix very large drawings, &c., on a sensitised surface screen? 3. Can four mirrors be so placed that by standing in the midst of them the image of a person is seen projected from them, not merely reflected? 4. How did Mr. J. Sang, of Kirkaldy, Scotland, impart stereoscopic effects to copies and paintings. It is said that these effects obtained are more wonderful than those produced by an ordinary stereoscope." *Reply.*—1. It depends entirely upon the lenses, especially the object glass. 2. Project the image on a sensitised surface and develop it. 3. It cannot be done by four plane mirrors, but it can by a concave one. 4. By photographing the engraving in its ordinary state and then cutting and slightly displacing the various parts and again photographing it.

Constant Reader inquires where he can obtain the following:—1. Wood boxes, 3¼in. square, for sending slides by rail and parcel post, and price. 2. Also pictures of Friendless Bob, Buy your own Cherries, Peep Behind Scenes, portraits of celebrities, &c., for copying purposes. 3. Also if he can get designs for comic slides, &c., and the price; if not, how come all the firms in England to have slides exactly the same? Do they hire negatives? If so, where can he hire? 4. Comic slipping frames and price. [Will some reader please forward us the information?—ED.]

Andrew C. Cole writes:—"I observe Mr. F. Vaughan asks in the December issue for some particulars to aid him in colouring comic slides. I enclose particulars which may perhaps aid him, and I hope many others." (See page 78.)

J. W. inquires:—"Where can I obtain grooved wood suitable for lining a box, in order to fit it for keeping transparencies in." (Perhaps some reader will kindly inform our correspondent.—ED.)

Silver Print writes:—"I enclose two prints, both from the same sheet of paper and printed from the same negative; but they are not quite the same, as you will observe if you measure the length of the face. I have been an amateur photographer for more than six months, and have not met with this defect before. Can you tell me the cause?" *Answer.*—Paper stretches unequally when wet; and one print has been cut out across the sheet. In order to avoid this defect, all the paper must be cut the same way of the sheet.

H. Birt asks for a simple means of testing gas before using. *Reply.*—Fill a small india-rubber balloon with the gas to be tested and fit a small metal tube at the mouth; then apply a light. If hydrogen only be present it will burn with a blue flame; if oxygen, the intensity of the light from the match will be increased; if the gas is mixed, it will burn until the pressure is released, when it will explode, but being on a small scale, no harm will be done.

———:o:———

THE colour of lantern slides produced by eikonogen varies according to the strength of the developer.—*Ch. L. Mitchell, M.D.*